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IS 9225 (1979): Bicycle Air Pumps [TED 16: Bicycles]

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“पुनर्पुष्ट १९९२”
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UDC 621·65·02-871 : 629·118·3

IS : 9225 - 1979

(Reaffirmed 2002)

Indian Standard

SPECIFICATION FOR BICYCLE AIR PUMPS

1. Scope — Covers the requirements of manually operated bicycle air pumps used for inflating the tube and tyre.

2. Types — Two types of bicycle air pumps are covered as given below:

a) Hand held pump (hand pump)

b) Foot held pump (foot pump)

Note—Two sizes of foot pump are covered.

3. Material

3.1 Barrel for foot pump and plunger, barrel and handle for hand pump shall be made from tubes of either cold drawn seamless or electrically resistance butt welded and shall conform to the requirements laid down in IS : 2039-1964 ‘ Specification for steel tubes for bicycle and allied purposes ’. Plunger for hand pump may also be made from close joint tube.

3.1.1 If agreed to between the purchaser and the manufacturer, barrel for air pumps may also be made from rigid polyvinyl chloride (PVC), acetal copolymer or high density polyethylene.

3.2 Plunger for foot pumps shall be made from mild steel rod in accordance with IS : 280-1972 ‘ Specification for mild steel wire for general engineering purposes ’ or tube of either cold drawn seamless or electrically resistance butt welded as specified in IS : 2039-1964.

3.3 Handle for foot pump may either be made from hard wood or steel tube.

3.3.1 Steel tube handle shall either be cold drawn seamless or electrically resistance butt welded as specified in IS : 2039-1964.

Note — Suitable hard wood for handle is specified in IS : 620-1965 ‘ General requirements for wooden tool handles (*second revision*) ’.

3.4 Leather for plunger leather cup shall be vegetable tanned leather as specified in IS : 3020-1964 ‘ Leathers for oil seals and washers ’.

3.5 Rubber hose shall be Type 1 as specified in IS : 446-1968 ‘ Air hose of rubber with woven textile reinforcement (*second revision*) ’ or IS : 911-1968 ‘ Air hose of rubber with braided textile reinforcement (*second revision*) ’.

3.6 Connector, when made of brass, shall conform to IS : 319-1974 ‘ Free-cutting brass bars, rods and sections (*third revision*) ’.

4. Dimensions

4.1 Dimensions of foot pump and hand pump shall be as given in Fig. 1 and 2 and dimensions of connector as in Fig. 3.

4.2 Dimensions of tubes specified in Fig. 1 and 2 shall be in accordance with IS : 2484-1964 ‘ Dimensions for steel tubes for bicycle purposes ’.

4.3 Thickness of tubes used in bicycle air pump shall not be less than 0·7 mm.

4.4 Rubber hose for foot pump shall be of diameter 5 mm and of length not less than 600 mm.

Bicycles Sectional Committee, EDC 26 [Ref : Doc : EDC 26 (2768)]

Adopted 31 July 1979

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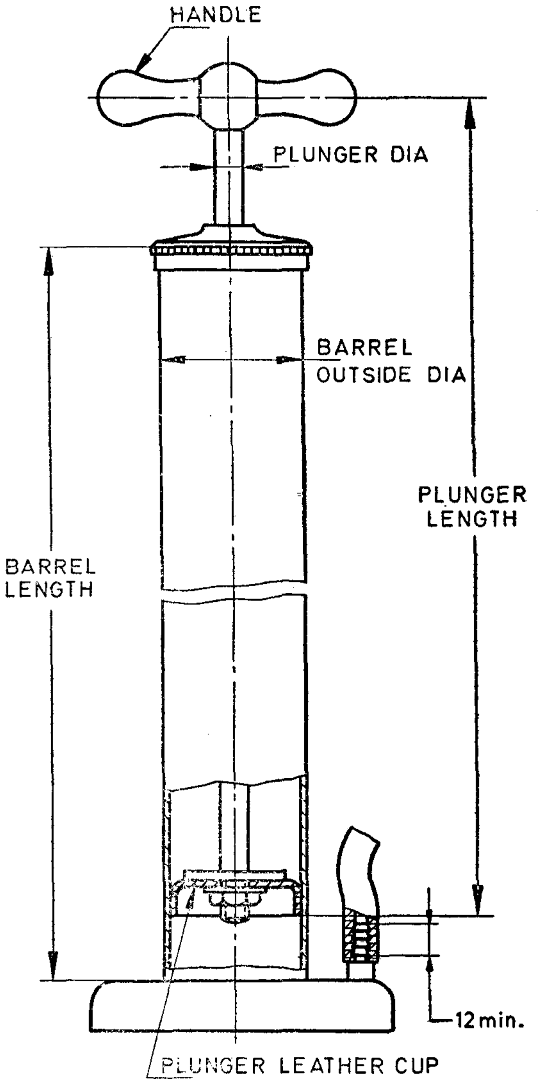
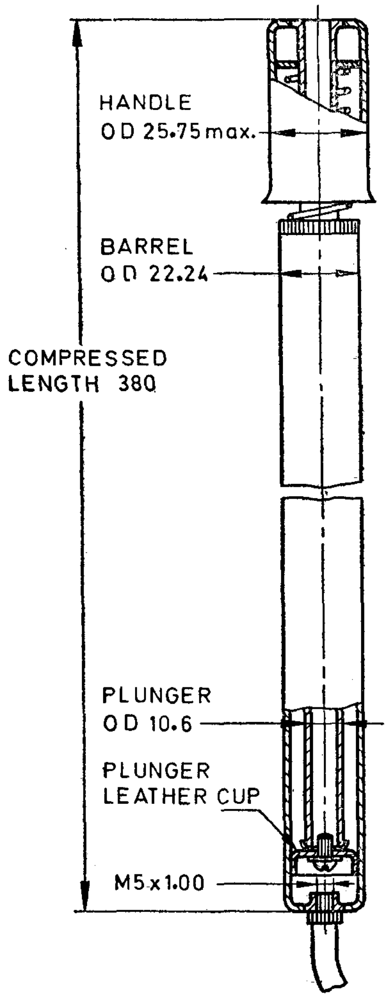


Designation	**Barrel Length**	**Barrel Outside Diameter**	**Plunger Dia**	**Plunger Length**
Size A	375	28·58	8	410
Size B	500	38·1	10	550

All dimensions in millimetres.

FIG. 1 FOOT PUMP



All dimensions in millimetres.

FIG. 2 HAND PUMP

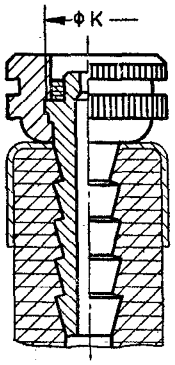
5. Designation — Bicycle air pump shall be designated by the name, type of pump, size of pump (in case of foot pump) the type of connector and the number of this standard.

Example — A bicycle air pump of foot type size A and connector type A shall be designated as:
Bicycle Air Pump — Foot Pump, Size A, Connector A, IS : 9225

Example — A bicycle air pump of hand type and connector type B shall be designated as:
Bicycle Air Pump — Hand Pump Connector B, IS : 9225

6. Manufacture

6.1 *Barrel Cap Assembly* — Barrel cap assembly to the barrel shall be such as would facilitate the easy removal of the plunger rod and cap assembly for replacement of cap. The cap shall have an integral plunger guide with an effective guide length of not less than 3 mm for hand pumps and 12 mm for foot pumps. The cap may be suitably finished on the outside to provide a non-slip grip during removal.



Designa-tion	K
Type A	ϕ 5.23×1·06 Pitch
Type B	ϕ 7·7×0·794 Pitch

Note—The screw threads are withworth truncated threads.

All dimensions in millimetres.

FIG. 3 CONNECTOR

6.2 *Barrel Base* — The metal base of the barrel shall be of robust construction, firmly attached to the barrel and shall not break or otherwise fail when tested as described in **9.4**. The base for foot pumps shall have extension on two opposite sides suitable for holding the pump upright with both feet. These may be provided as integral parts of the base or of the folding type.

6.3 *Plunger Assembly* — The leather cup and plunger assembly shall be so constructed as to prevent collapse of the cup or leakage of air past the cup when the plunger is worked down against the pressures stipulated in **7.5**. The plunger shall be provided with two compression springs fitted on the plunger rod, on either side of the barrel cap to cushion the upward and downward strokes of the pump.

6.4 *Connector* — The connector shall be of the knurled screw on type suitable for the plug dimensions of the valves specified in IS : 532-1979 ' Specification for bicycle tube valves (*second revision*) '.

6.4.1 Two types of connectors are covered as given below:

Type A — Suitable for the Woods tube valve
Type B — Suitable for the Schrader tube valve

Note — The supply of connector Type B shall form part of the agreement between the purchaser and the supplier.

6.5 *Springs* — The springs provided shall conform to IS : 7906 (Part II)-1975 ' Helical compression springs: Part II Specification for cold coiled springs made from circular section wire and bar ' and shall have suitable stiffness to protect the plunger from damage against normal pressure exerted on the handle.

7. General Requirements

7.1 All steel tubes used in the manufacture shall be straight and free from burrs and internal surface irregularities.

7.2 *Finish* — Unless otherwise specified by the purchaser, the exterior surfaces of the barrel, barrel base, barrel cap, metal handle of foot pump and external surfaces of hand pump shall be either painted or plated suitably for protecting the metal against corrosion. The wood handle shall be smooth and suitably painted.

7.3 The painted parts after salt solution test (*see* **9.1**) shall be free from softening, peeling or discolouring on the coated film.

7.4 The plating shall firmly adhere to the base metal and shall be non-porous. A thickness of 0·01 mm is recommended.

7.5 *Performance* — Each foot pump and hand pump shall be capable of developing the following pressures:

Hand pump — 0·5 MPa*
Foot pump — 0·7 MPa*

Note — The SI unit of pressure, MPa does not preclude the use of the SI unit, bar, where 1 bar = 100 KPa.

8. Sampling

8.1 Unless otherwise agreed to between the supplier and the purchaser, the procedure as given in IS : 2500 (Part I)-1973 'Inspection by attributes and by count of defects (*first revision*)' shall be followed for sampling inspection.

8.2 The sampling plan to be followed for visual and dimensional characteristics shall be corresponding to acceptable quality level (AQL) value of 4 percent given in Table 2 of IS : 2500 (Part I)-1973.

8.3 The sampling plan to be followed for tests shall be corresponding to acceptable quality level (AQL) value of 1·5 percent given in Table 2 of IS : 2500 (Part I)-1973.

9. Tests

9.1 *Salt Solution Test* — The painted parts shall be kept immersed for an hour in a 5 percent common salt solution at the temperature specified below to determine conformance with requirements of **7.3**.

Black enamel paint 80°C
Other enamel paint 60°C

9.2 *Corrosion Test* — Nickel-chromium plated parts shall be subjected to the corrosion test for service Grade No. 1 as specified in IS : 1068-1968 'Electroplated coatings of nickel and chromium on iron and steel (*first revision*)' to determine conformance to the requirements of **7.4.**

9.3 *Air Leakage Test* — There shall be no air leakage at the connector joints or at the plunger cup when the pump is operated against the pressure indicated in **7.5**. For the purpose of this test, a cycle tube inflated to the specified pressure should be used.

9.4 *Drop Test* — The sample pump shall be dropped three times from a height of 1 m on to a hard concrete surface so as to strike on the side projecting portion of the base to determine conformance with requirements of **6.2.**

10. Marking — The pump may be permanently marked with the name of the manufacturer or with a trade-mark of such known character that the source of manufacture may be readily determined.

10.1 *ISI Certification Marking* — Details available with the Indian Standards Institution.

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*1 MPa = 0·102 kgf/mm²

EXPLANATORY NOTE

Sizes of tubes specified in this standard have been based on the inch sizes so as not to cause the bicycle industry any immediate production difficulty. It is, however, hoped that in due course sizes of steel tubes used for bicycles will be revised to conform to rationalized metric units.

The Schrader tube valve which is amenable to check inflation pressure of tyre by means of a pressure gauge is being covered in the revision of IS : 532-1964 'Bicycle tube valves (*revised*)'. Connector Type B covered in this standard is suitable for Schrader tube valve.

In the preparation of this standard, assistance has been derived from the following specifications:

JIS D 9455-1961 'Air Pump for Bicycle', Japanese Industrial Standards Committee;

XX-P-746c 'Pump, inflating, mamal (for rubber tyres)', Federal Supply Service.

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TO
IS 9225 : 1979 SPECIFICATION FOR BICYCLE AIR PUMPS

(*Page 4, clause 7.5, Hand pumps*) — Substitute '0.3 MPa' *for* '0.5 MPa'.

(TED 16)

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